

set, or column, water (or colored standard solution) is used in the outer cup, and the colored test fluid plus the indicator in the inner cup. After adjustment, this set is not removed from the colorimeter during an observation. In the case of the righthand set the outer cup contains the colored test fluid, while the inner cup is for the standard solution plus indicator. This set is placed on the right for convenience, as it may be necessary to compare with the test fluid a series of standards until an exact match is obtained. A rough comparison, of course, is made before selecting the standard solution for comparison. In each case the column must contain an equal depth of colored test solution and of standard or colorless liquid, the indicator being in the standard in the one case and in the test solution in the other. There are no optical difficulties, and unless the indicator combines with the test solution, the comparison may be perfect."

The authors believe this method is as rapid as and more accurate than other methods.—J. WOODARD.

**Storied structure of dicotyledonous woods.**—A recent paper by Record<sup>3</sup> continues his studies upon the storied or tierlike structure of woods. He finds this arrangement of the secondary elements characteristic of many dicotyledonous woods, occurring through a wide range of orders and families. Such woods on longitudinal section (particularly the tangential) present fine cross lines or striations ("ripple marks"), which may be due to (1) the horizontal seriation of the medullary rays, (2) the tierlike arrangement of the tracheids, wood fibers, vessel segments, and the secondary phloem elements, or (3) a combination of (1) and (2). In some woods the pit areas on the fibers are also in seriation. This storied structure has been found fairly characteristic of the families Leguminosae (40 genera), Bignoniaceae (3), Bombacaceae (3), Compositae (3), Malvaceae (4), Sterculiaceae (7), Tiliaceae (5), and Zygophyllaceae (3); and occurs in one or two genera of each of the following families: Amarantaceae, Ebenaceae, Hippocastanaceae, Moraceae, Sapindaceae, and Ulmaceae.

Particular attention has been given in the present investigation to the various elements storied, the uniformity and distinctness of these transverse lines (ripple marks), and the height of the tiers in each wood examined. "Ripple marks" are sufficiently constant in stems of considerable thickness to serve, the author believes, as a "valuable diagnostic feature."—LADEMA M. LANGDON.

**Antarctic and sub-antarctic vegetation.**—TURRILL<sup>4</sup> has embodied in a convenient and useful summary the botanical results of the Swedish expedi-

<sup>3</sup> RECORD, S. J., Storied or tierlike structures of certain dicotyledonous woods. Bull. Torr. Bot. Club 46:253-273. 1919.

<sup>4</sup> TURRILL, W. B., Botanical results of Swedish South American and antarctic expeditions. Roy. Bot. Gard. Kew Bull. 268-279. 1919.